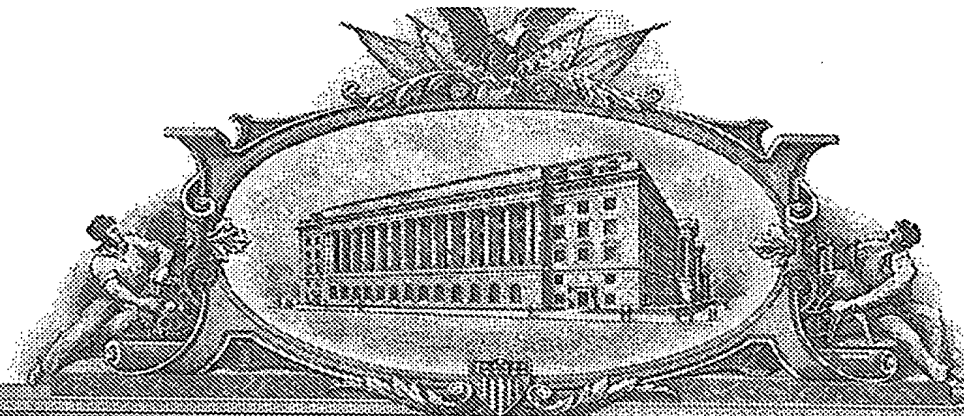


1297635



# THE UNITED STATES OF AMERICA

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**APPLICATION NUMBER: 60/549,414**

**FILING DATE: *March 02, 2004***

**RELATED PCT APPLICATION NUMBER: *PCT/US05/06710***



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Date of Deposit : March 2, 2004

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**PROVISIONAL APPLICATION COVER SHEET**

MS Provisional Patent Application  
Commissioner for Patents  
U.S. Patent and Trademark Office  
P. O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This is a request for filing a PROVISIONAL APPLICATION under 37 CFR 1.53(c):

22264 U.S. PTO  
60/549414



Atty Docket Number: -			
<b>INVENTOR(S)/APPLICANT(S)</b>			
Last Name	First Name	M.I.	Residence (City, State/Foreign Country)
Hutton	Kenneth	M.	9 Pearson Avenue, Dennyloanhead, Stirlingshire FK4 1RQ Scotland, U.K.
McKay	Anthony	J.	2 Clark Place, Torrance, East Dunbartonshire G64 4HG Scotland, U.K.
<input type="checkbox"/> Additional inventors are being named on separately numbered sheets attached hereto.			
<b>TITLE OF INVENTION (280 characters max)</b>			
SOOTBLOWER FRAME			
<b>CORRESPONDENCE ADDRESS</b>			
Steven L. Oberholtzer, Esq. BRINKS HOFFER GILSON & LIONE P.O. Box 10395 Chicago, IL 60610 USA (734) 302-6000			
<b>ENCLOSED APPLICATION PARTS (check all that apply)</b>			
<input checked="" type="checkbox"/> Specification: 19 pages		<input type="checkbox"/> Small Entity Assertion	
<input checked="" type="checkbox"/> Drawing(s): 9 sheets		<input type="checkbox"/> Other (specify):	
<b>METHOD OF PAYMENT (check one)</b>			
<input checked="" type="checkbox"/> A check or money order is enclosed to cover the filing fee.		PROVISIONAL FILING FEE AMOUNT(S)	
<input type="checkbox"/> The Director is hereby authorized to charge the filing fee to Deposit Account Number <u>23-1925</u>		\$160.00 Lg E	

Was the invention made by, or under a contract with, an Agency of the United States Government?

☒ No.

☐ Yes. U.S. government agency: \_\_\_\_\_; Government Contract No.: \_\_\_\_\_.

Respectfully submitted,

March 2, 2004

Date

Steven L. Oberholtzer, Esq. (Reg. No. 30,670)

☐ Attorney/Agent Of Record

☐ 37 C.F.R. 1.34(a)

**CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8**

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, with sufficient postage, in an envelope addressed to: MS Provisional Patent Application, Commissioner for Patents, U.S. Patent and Trademark Office, P. O. Box 1450, Alexandria, VA 22313-1450, on the below date:

Date: March 2, 2004

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Signature:

**PROVISIONAL APPLICATION FILING ONLY**

**BRINKS HOFFER GILSON & LIONE**

NBC Tower – Suite 3600, 455 N. Cityfront Plaza Drive, Chicago, IL 60611-5599

# IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of: Hutton et al.

Appln. No.: Unknown

Filed: Herewith

For: SOOTBLOWER FRAME

Attorney Docket No: 10577-152

Examiner: Unknown

Art Unit: Unknown

MS Provisional Patent Application  
Commissioner for Patents  
U.S. Patent and Trademark Office  
P. O. Box 1450  
Alexandria, VA 22313-1450

## TRANSMITTAL

Sir:

Attached is/are:

- X Provisional Patent Application and Cover Sheet
- X Transmittal Letter
- X Nine Sheets of Drawings
- X Check in the Amount of \$160.00
- X Permit to File Abroad
- X Return Receipt Postcard

### Fee calculation and payment:

- ☐ No additional fee is required.
- ☐ An extension fee in an amount of \$\_\_\_\_\_ for a \_\_\_\_\_-month extension of time under 37 C.F.R. § 1.136(a).
- ☐ A petition or processing fee in an amount of \$\_\_\_\_\_ under 37 C.F.R. § 1.17(\_\_\_\_\_).
- ☐ An additional filing fee has been calculated as shown below:

		Small Entity		Other Than Small Entity	
	Claims Remaining After Amendment	Highest No. Previously Paid For	Present Extra	Rate	Add'l Fee
Total	Minus			x \$9=	x \$18=
Indep.	Minus			x 43=	x \$86=
First Presentation of Multiple Dep. Claim				+\$145=	+\$290=
				Total	Total
				\$	\$

### Fee calculation and payment:

- ☒ A check in the amount of \$160.00 to cover the above-identified fee(s) is enclosed.
- ☐ Please charge Deposit Account No. 23-1925 in the amount of \$\_\_\_\_\_. A copy of this Transmittal is enclosed for this purpose.
- ☒ The Commissioner is hereby authorized to charge payment of any additional filing fees required under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17 associated with this paper (including any extension fee required to ensure that this paper is timely filed), or to credit any overpayment, to Deposit Account No. 23-1925. A copy of this Transmittal is enclosed for this purpose.

Respectfully submitted,

March 2, 2004

Date

Steven L. Oberholtzer, Esq. (Reg. No. 30,670)  
Attorney/Agent for Applicant

### CERTIFICATE OF EXPRESS MAILING

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Date: March 2, 2004

Name: M. Collins

Signature: *M. Collins*

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BRINKS HOFER GILSON & LIONE  
P.O. Box 10395  
Chicago, IL 60610

"Express Mail" mailing label number: EV 155783225US

Date of Deposit: March 2, 2004

Attorney Docket No. 10577-152

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
APPLICATION FOR UNITED STATES LETTERS PATENT

INVENTOR(S):                    Kenneth McKay Hutton  
                                      Anthony John McKay

TITLE:                            SOOTBLOWER FRAME

ATTORNEY(S):                  Steven L. Oberholtzer  
                                      BRINKS HOFER GILSON & LIONE  
                                      P.O. BOX 10395  
                                      CHICAGO, ILLINOIS 60610  
                                      (734) 302-6000

## **SOOTBLOWER FRAME**

### **BACKGROUND OF THE INVENTION**

**[0001]** This invention relates generally to a sootblower device for directing a fluid spray against heat exchanger surfaces in large scale combustion devices for cleaning the surfaces, and particularly to such device having improvements in the construction and design of its structural chassis or frame.

**[0002]** Devices generally known as sootblowers are used to clean internal surfaces within boilers, furnaces, or other devices in which a fossil fuel is combusted. Sootblowers typically employ water, steam, air, or a combination thereof as a blowing medium which is directed through one or more nozzles against encrustations of slag, ash, scale, and/or other fouling materials which become deposited on the surfaces.

**[0003]** Typical sootblowers of the long retracting type have a retractable lance tube which is periodically advanced into and withdrawn from the combustion device and is simultaneously rotated such that one or more nozzles at the end of the lance tube project blowing medium jets tracing helical paths.

**[0004]** Conventional long retracting sootblowers of the long retracting type use an elongated chassis or frame in which a carriage assembly is driven for movement along the frame. The lance tube is carried by and moved by the carriage. An internal drive mechanism within the carriage causes a drive pinion gear to rotate which meshes with an elongated toothed rack fixed to the frame, driving the carriage for longitudinal motion. Through another set of internal gears, the lance tube is

caused to rotate as the carriage and lance move longitudinally along the frame. Examples of such sootblower devices include the well known "IK" type sootblower manufactured by the Assignee which is described by U.S. Patent Nos. 5,920,951 and 5,605,117 which are hereby incorporated by reference.

**[0005]** Manufacturers of sootblower devices are continuously striving to improve their performance and reduce their cost of production, operation, and maintenance. A significant cost factor in the production of a sootblower is the fabrication of its elongated frame. Generally speaking, a long retracting sootblower has a frame with two vertical side panels to which are welded or bolted parallel upper and lower tracks for the carriage to run along. The vertical sides are held apart either by an integral horizontal upper panel or, in the case of some sootblower devices such as Assignee's "IK 600" sootblower, by spacer bars or by cross-bracking. These sootblower frame side panels are typically sheet metal plates to which are connected an "L" shaped angle iron which provides the surface for running the carriage rollers and the toothed drive rack. Each of these components are separately manufactured, fabricated, shipped, and assembled to the frame. This fabrication is an expensive procedure requiring significant labor involvement and the need to fabricate and stock inventory.

**[0006]** The typical assembled sootblower frame requires a high degree of skill and precision in its assembly. The angle iron pieces which form the track surfaces must be accurately aligned and may become misaligned during use. The assembly requirements also mean that assembly operations are best performed at a centralized manufacturing site with specialized fixturing and labor, which limits

flexibility in optimizing the supply chain. And finally, a typical sootblower frame is heavier and uses more material than a structurally optimized design.

**[0007]** Long retracting sootblowers suffer from the difficulty resulting from having to provide a chassis that is strong and stiff and geometrically true, and which allows the accuracy of alignment between the surfaces of the rack and tracks to be attached, and to be precisely maintained relative to each side of the chassis. Further, it is difficult to maintain the accuracy of alignment (parallelism) between the surfaces of each rack and tracks.

#### **BRIEF SUMMARY OF THE INVENTION**

**[0008]** In accordance with the present invention, a sootblower frame is provided which incorporates side panels having preformed integral panel sections which define channels with surfaces along which the carriage rollers can move as well as providing a surface for the attachment of the toothed drive rack. The integrally formed channels provide stiffening for the side panels and further provide areas for the carrying of control cables and other conduits used in the sootblower assembly.

**[0009]** The concept of the present invention also enables the sootblower frame side panels to be manufactured in a modular fashion, allowing multiple pieces to be assembled to define a desired length of overall sootblower frame. Since the various critical surfaces are integrally formed at the point of manufacture, their dimensional precision and stability can be assured. These components may be shipped to the customer site with assurance that the frame dimensions remain true.

**[0010]** Further objects, features, and advantages of the invention will become apparent from a consideration of the following description and the appended claims when in taken in connection with the accompanying drawings.

**BRIEF DESCRIPTION OF THE DRAWINGS**

**[0011]** Figure 1 is a pictorial view showing a long retracting sootblower having a frame structure shown in phantom in accordance with the prior art;

**[0012]** Figure 2 is a cross sectional view showing the sootblower frame configuration in accordance with the prior art;

**[0013]** Figure 3 is a perspective view of a sootblower assembly incorporating a frame in accordance with a first embodiment of the present invention;

**[0014]** Figure 4 is cross sectional view of a frame substantially similar to that shown in Figure 3;

**[0015]** Figure 5 is an end view of the frame shown in Figure 3 in accordance with a first embodiment, showing the sootblower carriage in position within the frame;

**[0016]** Figure 6 is a cross sectional view of a frame in accordance with a second embodiment of this invention;

**[0017]** Figure 7 is an end view of a sootblower assembly incorporating a frame in accordance with a third embodiment of this invention;

**[0018]** Figure 8 is an end view showing a sootblower assembly incorporating a frame in accordance with a fourth embodiment of this invention;

**[0019]** Figure 9 is a partial cross sectional view through a sootblower frame in accordance with a fifth embodiment of this invention;



**[0020]** Figure 10 is a partial cross sectional view through a sootblower frame in accordance with a sixth embodiment of this invention; and

**[0021]** Figure 11 is a partial cross sectional view through a sootblower frame in accordance with a seventh embodiment of this invention.

#### **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS**

**[0022]** A sootblower assembly of a type suitable for incorporation with the present invention is shown in Figure 1 and is generally designated there by reference number 10. Sootblower 10 principally comprises frame assembly 12, lance tube 14, feed tube 16, and carriage 18. Sootblower 10 is shown in its normal retracted resting position. Upon actuation, lance tube 14 is extended into and retracted from a combustion system, such as a boiler (not shown) and may be simultaneously rotated.

**[0023]** Frame assembly 12 includes a generally rectangular shaped frame 20 which forms a frame or chassis for the entire unit. Carriage 18 is guided along two pairs of tracks located on opposite sides of frame 20, also shown in Figure 2, including a pair of lower tracks 21 and upper tracks 22. A pair of toothed racks 23 are connected to upper tracks 22 and are provided to enable longitudinal movement of carriage 18. Frame assembly 12 is supported at the wallbox (not shown) which is affixed to the boiler wall or another mounting structure and is further supported by rear support bracket 24.

**[0024]** Carriage 18 drives lance tube 14 into and out of the boiler and includes a drive motor 26 and a gear box 28 which is enclosed by housing 30. Carriage 18 drives a pair of pinion gears 32 which engage with toothed racks 23 to advance

carriage 18 and lance tube 14. Support rollers 34 engage upper and lower guide tracks 22 and 21 to support carriage 18.

**[0025]** Feed tube 16 is attached at one end to rear bracket 36 and conducts the flow of cleaning medium which is controlled by the action of poppet valve 38. Poppet valve 38 is actuated through linkages 40 which are engaged by carriage 18 to begin cleaning medium discharge upon extension of lance tube 14, and cuts-off the flow once the lance tube and carriage return to their idle retracted position, as shown in Figure 1. Lance tube 14 over-fits feed tube 16 and a fluid seal between them is provided by internal joint packing (not shown). A sootblower cleaning medium such as air or steam flows inside of lance tube 16 and exits through one or more nozzles 50 mounted to nozzle block 52 at distal end 51.

**[0026]** Coiled electrical cable 42 conducts power to the drive motor 26. Front support bracket 44 supports lance tube 14 during its longitudinal and rotational motion. For long lance tube lengths, an intermediate support 46 may be provided to prevent excessive bending deflection of the lance tube.

**[0027]** Figure 2 shows, in section, frame 20 of a prior art configuration. As illustrated, frame 20 is bent in an inverted "U" configuration. The pair of upper tracks 22 are formed of "L" channel angle iron and are mounted to the inside surfaces of the frame side panels 54. Lower tracks 21 formed of square bar or tube stock are mounted below upper tracks 54 and are also fixed to the frame by welding or threaded fasteners. The gap area formed between upper and lower tracks 22 and 21 defines a channel or pocket which provides a guiding surface for support rollers 34, allowing the carriage 18 to move along the length of frame 20. Toothed rack 23 is fixed to the lower surface of upper tracks 22 and are welded or bolted in position and

mesh with drive pinion gears 32. As previously discussed, the prior art frame 20 requires a number of separate components which must be fabricated, stocked, and assembled.

**[0028]** Now with reference to Figures 3, 4, and 5, a frame in accordance with a first embodiment of this invention is shown and is generally designated by reference number 60. Frame 60 includes a pair of opposed side panels 62 and top plate 64. In accordance with a principal feature of this invention, side panels 62 are preformed to have a configuration which allows them to integrally provide surfaces for the guidance of support rollers 34, as well as a surface for the mounting of toothed rack 23. The upper portion of side panel 62 feature a vertical panel section 66 with an inwardly deflected attachment flange 68.

**[0029]** For purposes of the description of frame 60 and other embodiments of this invention, reference to "inward" or "inboard" refers to the direction toward the center plane 70 of the frame 60, whereas "outward" or "outboard" refers to the opposite direction. Moreover, "upper" or "upwardly", and "lower" or "downwardly", and "left-hand" and "right-hand" refer to the components as they are illustrated.

**[0030]** The lower portion of vertical panel sections 66 integrally form an inwardly opening channel 74 which defines a guiding pocket or surface for the movement of support rollers 34. Channel 74 includes a horizontal upper panel section 72, a vertical side panel section 76, and a lower inwardly deflected horizontal panel section 78. In order to provide stiffening for the lower portion of side panel 62 and for other functions which will be subsequently described, channel 74 blends into an outwardly facing channel or pocket 80 formed by panel sections 82 and 84.

Free-flange section 86 defines the lower edge of side panels 62. Both the left-hand and right-hand side panels 62 are of mirror image configuration.

**[0031]** Top plate 64 features center panel section 88 and is bent to form an "L" channel configuration 90 along side edges which form flanges 92. Flanges 92 match with side panel attachment flanges 68, enabling these components to be attached. Such assembly can be accomplished through welding or brazing operations or, preferably for serviceability, threaded fasteners (shown in Figure 3).

**[0032]** Figure 5 illustrates sootblower carriage 18 in position within frame 60. As shown, toothed racks 23 are bolted to horizontal upper panel sections 72 within channels 74. Support rollers 34 are enclosed within channel 74 and ride in contact with the panel section 78. Horizontal upper panel section 72 extends inwardly a distance greater than that of horizontal panel section 78, enabling the rack 23 with its teeth facing downwardly to be positioned to clear support roller 34 and "trap" the upper portion of the support roller, with the support roller fitting in the gap between the rack and panel section 76.

**[0033]** The side panels 62 and top plate 64 of frame 60 may be formed from various materials. Ideally, a high yield steel material is selected which can be galvanized on both sides before fabrication. The stock which forms frame 60 would be provided as coil steel of substantially constant thickness or gauge which are formed to the configurations illustrated by brake forming or roll forming operations. Multiple or progressive forming operations may be provided to define the described configurations.

**[0034]** As is evident from the foregoing description, frame 60 integrally incorporates elements previously required by separately assembled elements

including tracks 21 and 22 (as described in connection with Figures 1 and 2). This integrated configuration, in addition to minimizing individual components, labor, and other manufacturing issues, further integrally defines, by design, a precise gap between panel sections 72 and 78 for the movement of support rollers 34. In addition, the desired parallelism between the panel sections 72 and 78 is also provided. Side panels 62 may include pre-formed holes or cut-outs desired for fasteners, pass-through openings, inspection ports, etc.

**[0035]** The provision of pocket 80 provides a channel through which electrical power cables or other signal cables or conduits may be positioned in a manner protected from environmental conditions. Pocket 80 further stiffens the panels and conveniently allows individual sections to be attached. A short length of bar stock or pin 94 can be installed within pocket 80. The bar stock 94 may be used to connect together separately formed panels of the configuration described previously, in a manner similar to assembling section of model railroad track. This allows sootblower 10 to have a modular construction feature, allowing various lengths of the sootblower to be made up, using available parts which may be trimmed to length and attached together as needed to provide the desired overall length. Bar stock 94 may also be used along the entire length of panels 62 to provide structural reinforcement.

**[0036]** Top plate 64, as shown in Figures 3 and 5, include a slight variation from that shown in Figure 4 in that flange 92 further includes a vertically extending free flange edge 96. This allows threaded fasteners 93 to be bolted through top and side surfaces at the connection between side panels 62 and top plate 64.

**[0037]** Figure 6 illustrates a second embodiment of this invention which in principle is identical to that of the first embodiment except that, in this instance, frame 98 is an integral structure which incorporates the features of side panels 62 and top plate 64. In all other respects, frame 98 would be implemented as described previously in connection with a first embodiment.

**[0038]** Now with reference to Figure 7, a third embodiment of the present invention is illustrated. In this instance, frame 102 incorporates side panels 104 having a configuration differing from that of side panels 62. Side panels 104 define a vertical upper attachment flange 106, an upper outwardly facing "U" channel shaped pocket 108 formed by panel sections 110, 112, and 114, which blends into center vertical panel section 116. In this embodiment, channel 118 is formed by an inwardly directed reversely bent flange 120 having an upper panel section 121 at its upper surface and section 122 defining its lower surface. Panel sections 120 and 121 are "flattened" together, pinched into contact. Center panel section 123 emerges into an outwardly opening U-channel shaped pocket 124 including panel sections 126, 128, and 130. Free flange 131 defines the lower edge of side panels 104. As in the prior embodiment, toothed rack 23 is affixed to the upper surface of support roller channel 118 and is bolted through reversely bent flange 120.

**[0039]** For this embodiment, top plate 132 has a simplified configuration including center panel 134 and downwardly deflected vertical attachment flanges 136. As in the prior embodiment, outwardly facing U-channel shaped pockets 108 and 124 provide locations for the running of wiring and further enable individual sections to be connected together using lengths of attaching bar stock 94, as described previously.

**[0040]** Figure 8 illustrates a fourth embodiment in accordance with the present invention. In this instance, frame 140 includes side panels 104 substantially identical to those described in connection with Figure 6. In this embodiment, however, top plate 132 is an optional element which may be made of polymeric or very thin sheet metal material for protecting the internal components of a sootblower. A structural connection between the two side panels 104 is provided by a number of tie bars 142 which span between the side panels and are located at regular intervals along the length of frame 140. Alternatively, tie bars 142 may be replaced or supplemented by cross-bracing members or a framework structure.

**[0041]** Figures 9 through 11 illustrate further alternate embodiments of frame side panels. These figures incorporate some elements described previously, which are identified by the reference numbers mentioned previously for the same features. These figures are shown in partial sections, showing only the portion of the side panels which define the channels or pockets for containing support rollers 34 and the lower free flanged edges. In Figure 9, side panel 144 includes the features shown in connection with Figures 7 and 8 but includes a reversely folded flange 147 in place of pocket 80. The upper portion of the channel 149 is formed by flange 120, as described in Figures 7 and 8. Panel section 148 provides a surface for supporting rollers 34.

**[0042]** Figure 10 illustrates the side panel 150 which is modified from that shown in Figures 7 and 8 in that the lower outwardly facing pocket 151 is not rectangular in section as pocket 80, but rather forms a triangular cross sectional configuration.

**[0043]** Figure 11 illustrates an alternate embodiment of side panel 152 in which the upper surface of the support roller pocket is formed by an outwardly opening pocket 153 formed from panel sections 154, 156, and 158.

**[0044]** In each of the embodiments described in connection with this invention, each of the two side panels are symmetrically identical to one another. However, it would be possible to vary the configuration of the left-hand and right-hand side panels as desired for particular applications. In fact, many of the side sections described in the specification may be interchanged with one another in such an assembly.

**[0043]** While the above description constitutes the preferred embodiment of the present invention, it will be apparent that the invention is susceptible to modification, variation and change without departing from the proper scope and fair meaning of the accompanying claims.



**CLAIMS**

1. A frame for a sootblower for projecting a stream of a fluid blowing medium against internal surfaces of a combustion device, the sootblower of the type having a lance tube and a carriage which carries the lance tube causing it to be periodically advanced into and retracted from the interior of the combustion device, the carriage of the type having one or more support rollers and a drive pinion gear meshing with a toothed rack affixed to the frame, the frame comprising:

a pair of elongated side panels for enclosing the carriage, the side panels made of substantially uniform thickness metal stock formed to integrally define a first horizontal panel section for allowing the support rollers to roll along the side panels and a second horizontal panel section for mounting the toothed rack to the side panels in a position for meshing within the drive pinion gear.

2. The frame in accordance with Claim 1 further comprising the side panels further defining a channel formed in part by the first horizontal panel section which extends inwardly.

3. The frame in accordance with Claim 2 further comprising the channel formed by the first horizontal panel section at its lower surface and at its upper surface by the second horizontal panel section with the first and second horizontal panel sections joined by a first vertical panel section.

4. The frame in accordance with Claim 3 further comprising the channel opening inwardly for receiving the support rollers.

5. The frame in accordance with Claim 4 further comprising the second horizontal panel section extending inwardly a greater distance than the first horizontal panel section.

6. The frame in accordance with Claim 5 wherein the toothed rack is fastened to the second horizontal panel section inboard of the support roller with teeth of the toothed rack facing downwardly.

7. The frame in accordance with Claim 1 further comprising the side panels forming a pocket.

8. The frame in accordance with Claim 7 further comprising a bar fastened within the pocket for enabling multiple sections of side panel to be connected together.

9. The frame in accordance with Claim 7 further comprising the pocket opening outwardly.

10. The frame in accordance with Claim 7 further comprising the first horizontal panel section formed by a reversely bent flange.

11. The frame in accordance with Claim 7 further comprising the second horizontal panel section formed by a reversely bent flange.

12. The frame in accordance with Claim 1 further comprising the frame formed by a pair of the side panels including a right-hand side panel and a left-hand side panel and a top panel extending between the right-hand side panel and the left-hand side panel.

13. The frame in accordance with Claim 12 further comprising the top panel being integrally formed with the right-hand side panel and the left-hand side panel.

14. The frame in accordance with Claim 1 further comprising one or more tie bars connecting a pair of the side panels together to define a right-hand side panel and a left-hand side panel.

15. A frame for a sootblower for projecting a stream of a fluid blowing medium against internal surfaces of a combustion device, the sootblower of the type having a lance tube and a carriage which carries the lance tube causing it to be periodically advanced into and retracted from the interior of the combustion device, the carriage of the type having one or more support rollers and a drive pinion gear meshing with a toothed rack affixed to the frame, the frame comprising:

a pair of elongated side panels for enclosing the carriage including a right-hand side panel and a left-hand side panel, the side panels made of substantially uniform thickness metal stock each formed to integrally define an inwardly facing channel each having a lower surface defined by a first horizontal panel section for allowing the support rollers to roll along the side panels and each having an upper surface defined by a second horizontal panel section for mounting the toothed rack to the side panels with the first and second horizontal panel sections joined by a first vertical panel section.

16. The frame in accordance with Claim 15 further comprising the second horizontal panel section of at least one of the side panels extending inwardly a greater distance than the first horizontal panel section.

17. The frame in accordance with Claim 16 wherein the toothed rack is fastened to the second horizontal panel section inboard of the support roller with teeth of the toothed rack facing downwardly.

18. The frame in accordance with Claim 15 further comprising the side panels forming at least one pocket.

19. The frame in accordance with Claim 18 further comprising a bar fastened within the pocket for enabling multiple sections of side panel to be connected together.

20. The frame in accordance with Claim 18 further comprising the pocket opening outwardly.

21. The frame in accordance with Claim 15 further comprising the first horizontal panel section formed by a reversely bent flange.

22. The frame in accordance with Claim 15 further comprising the second horizontal panel section formed by a reversely bent flange.

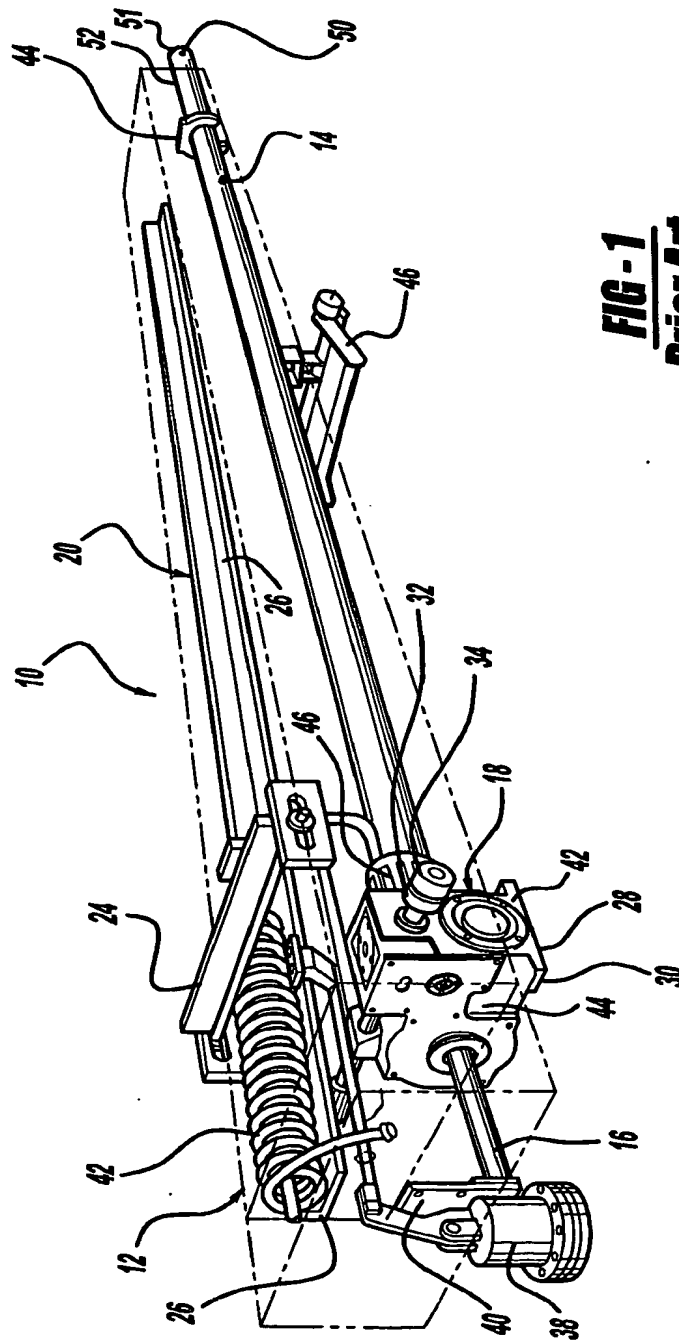
23. The frame in accordance with Claim 15 further comprising a top panel extending between the right-hand side panel and the left-hand side panel.

24. The frame in accordance with Claim 23 further comprising: the top panel being integrally formed with the right-hand side panel and the left-hand side panel.

25. The frame in accordance with Claim 15 further comprising one or more tie bars connecting the right-hand side panel and the left-hand side panel.

**ABSTRACT OF THE DISCLOSURE**

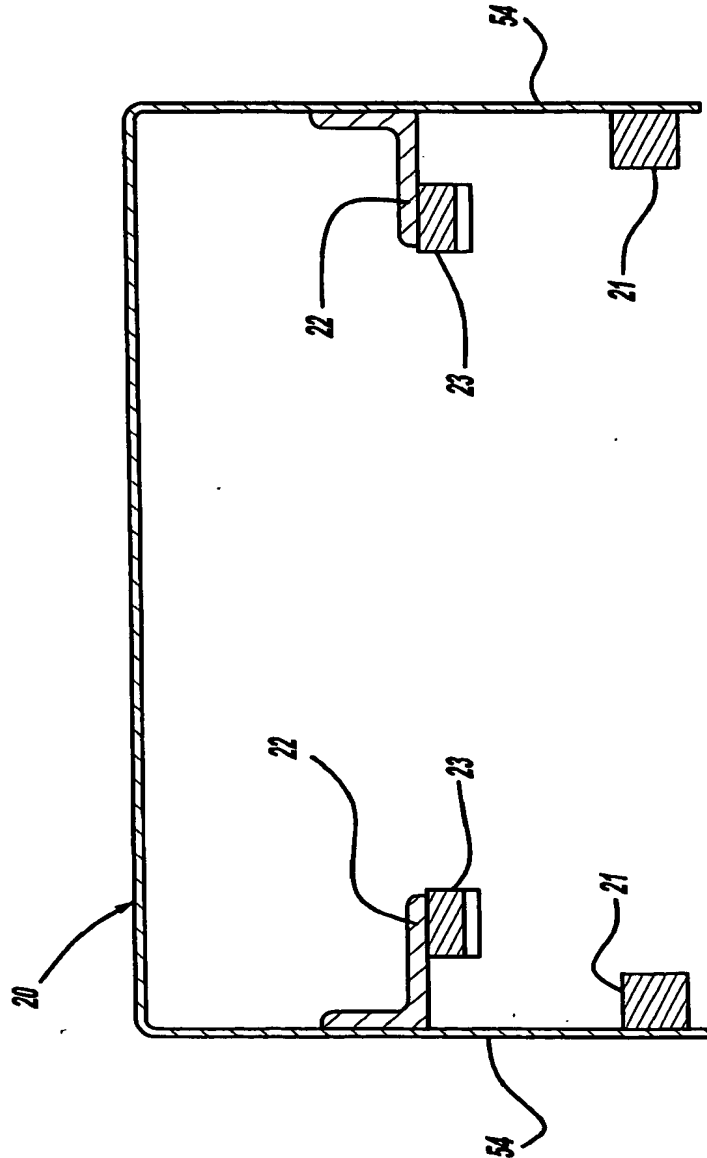
**[0044]** A sootblower frame particularly adapted for long retracting-type sootblowers for cleaning of internal surfaces of large scale combustion devices. The frame, preferably formed from sheet metal stock, incorporates integrally formed surfaces and configuration features which provide for guiding and movement of the sootblower carriage assembly. The side panels of the frame further provide the surface for the mounting of the drive rack by which the carriage is advanced and retracted along the frame.



**FIG-1**  
**Prior Art**

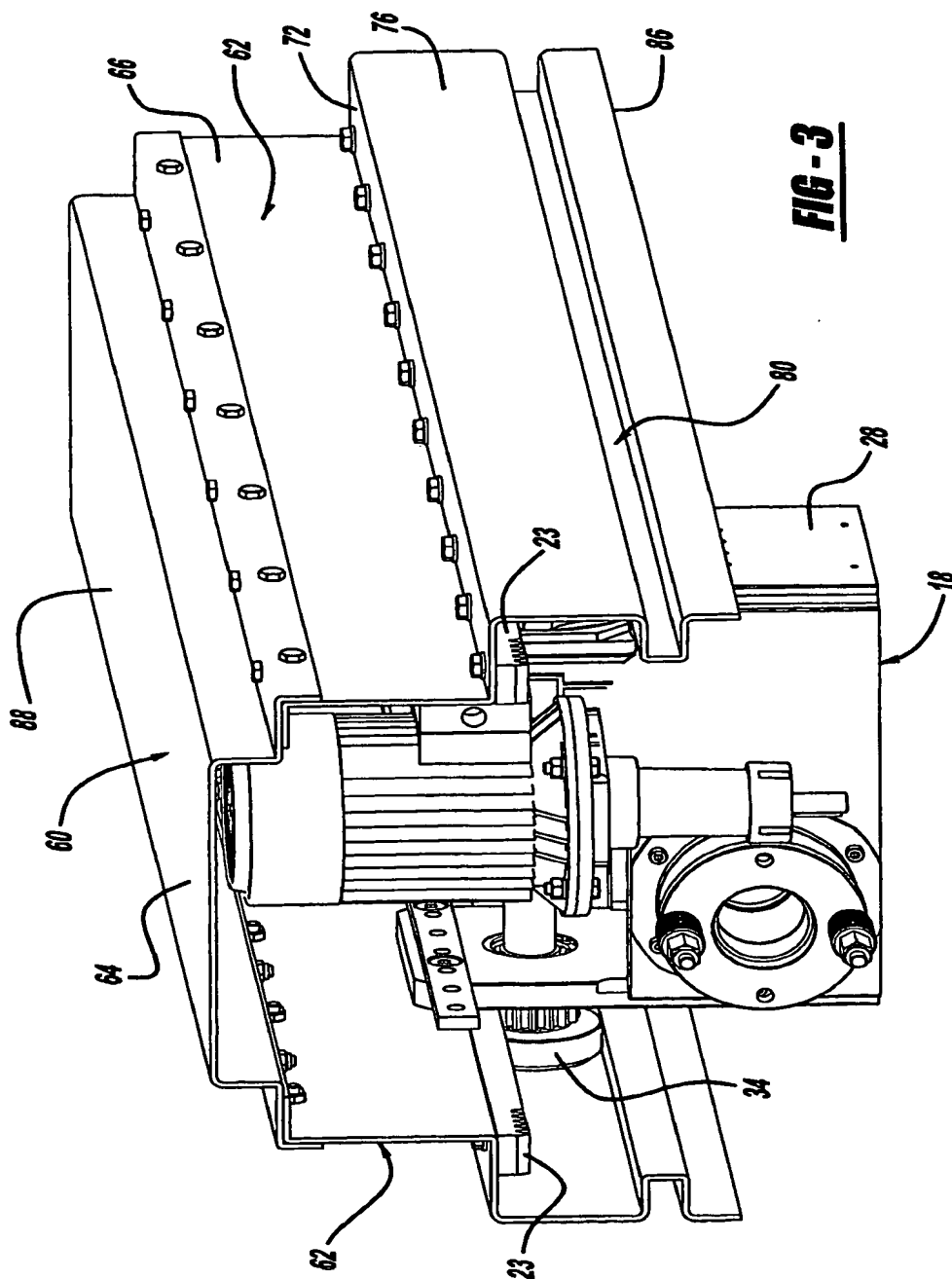


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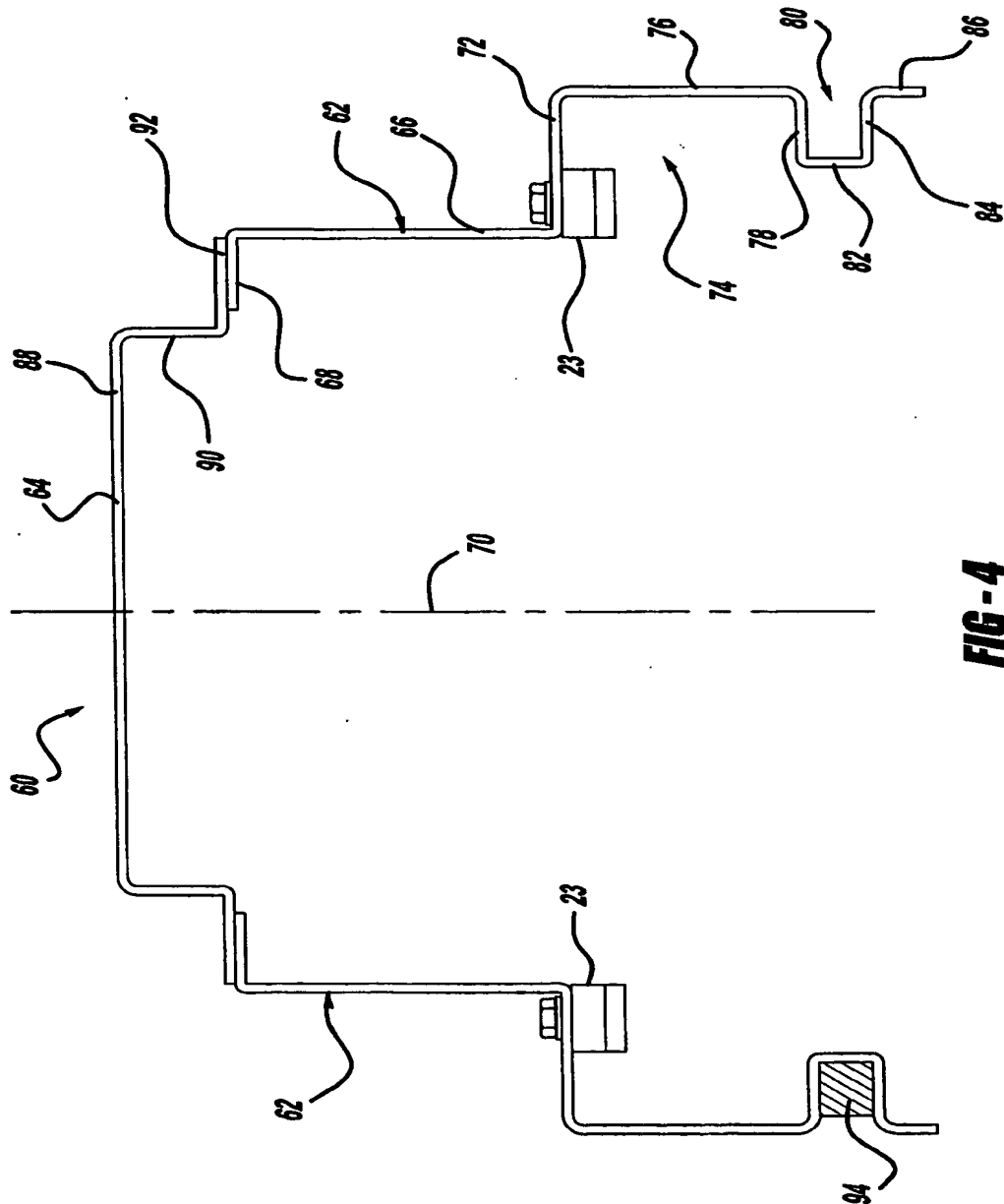


**FIG - 2**  
**Prior Art**

3/9

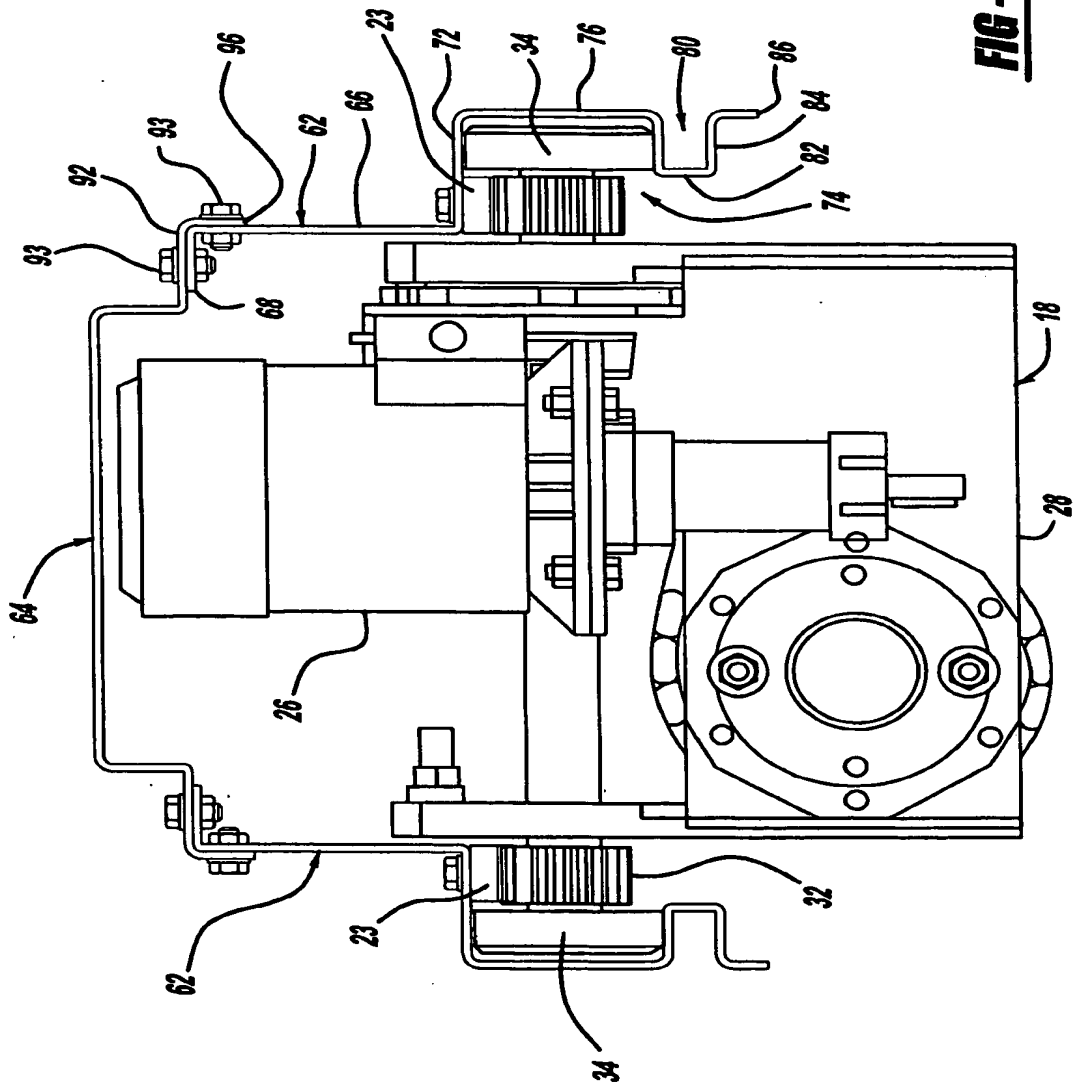


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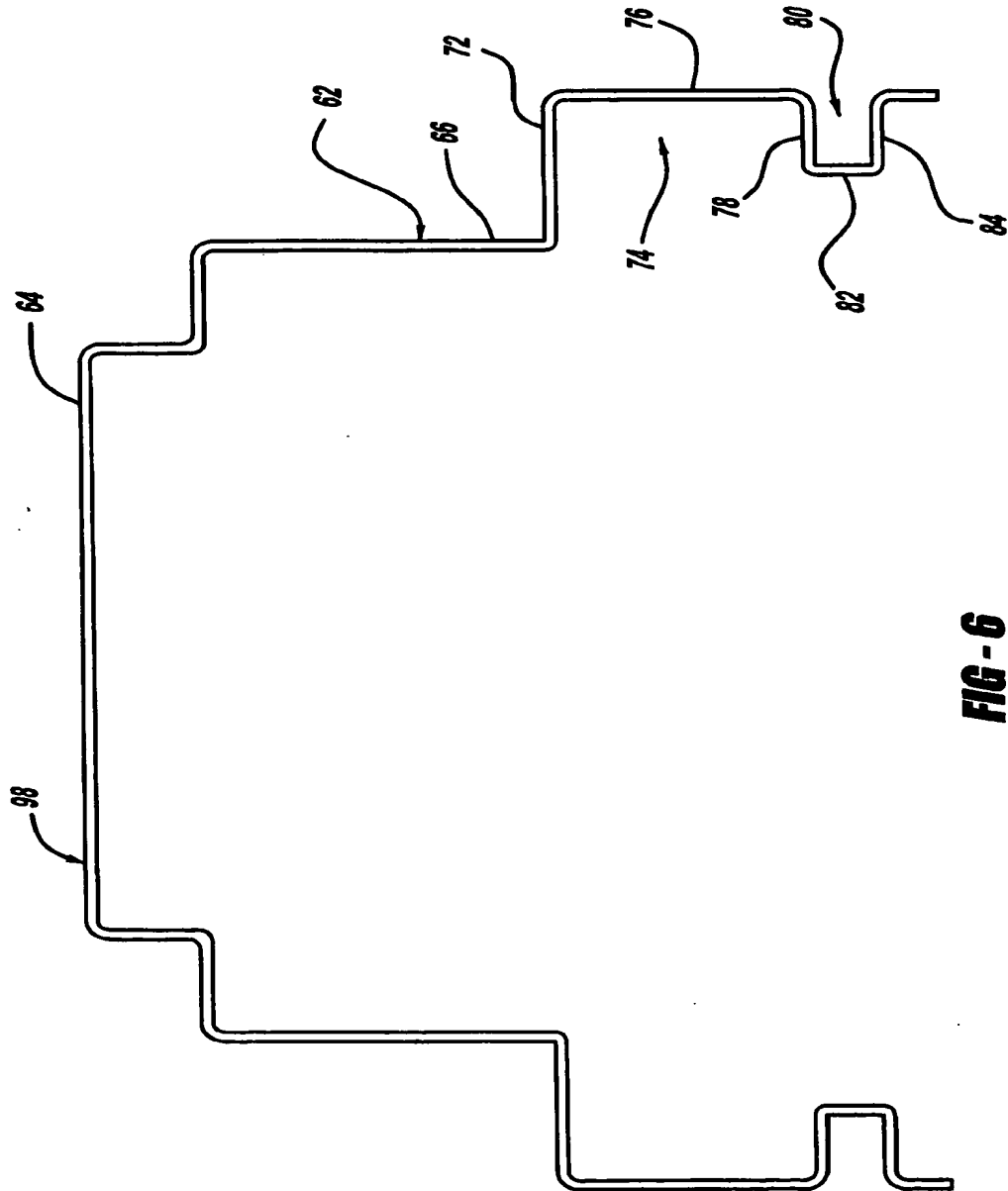


**FIG-4**

5/9

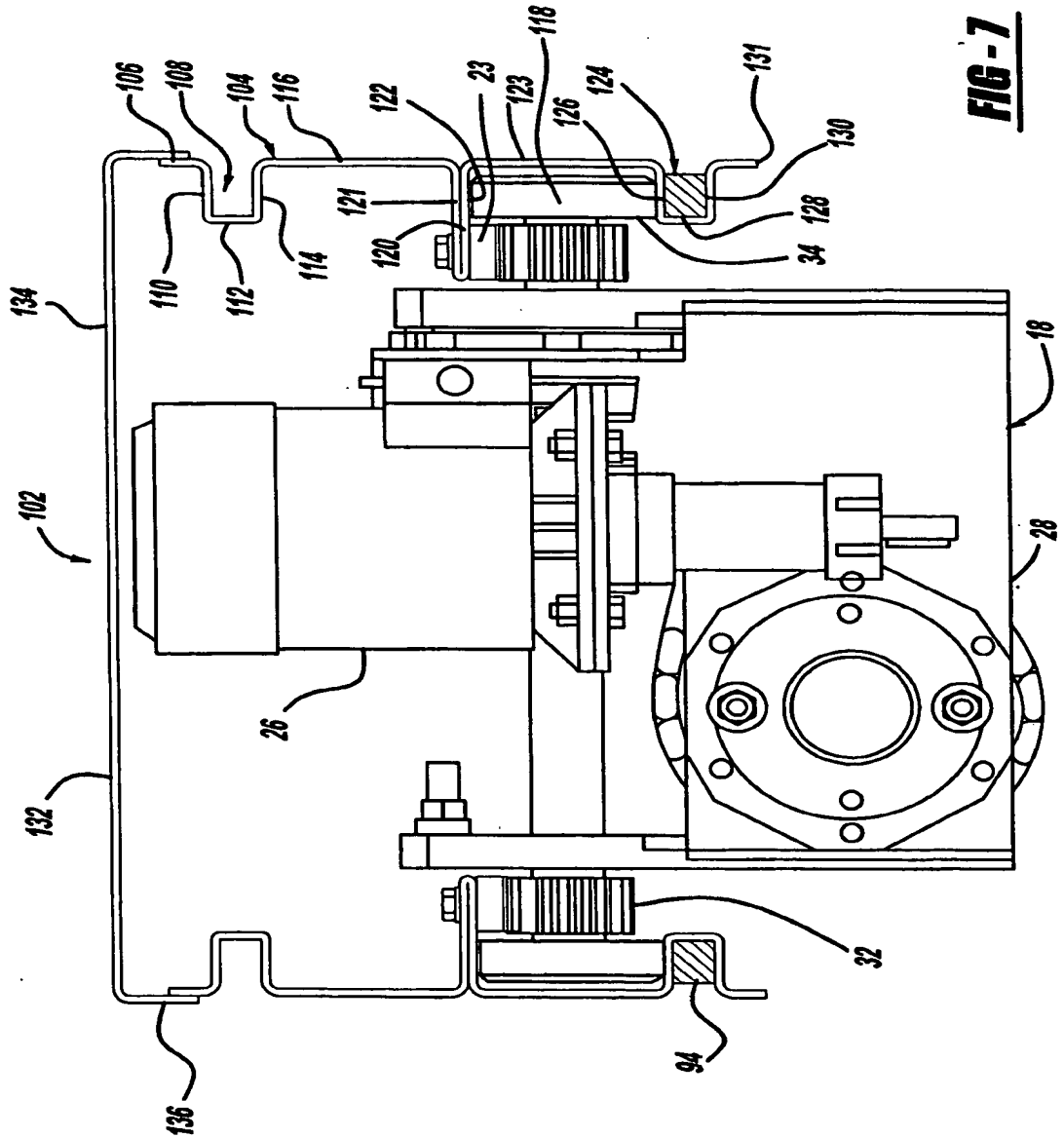


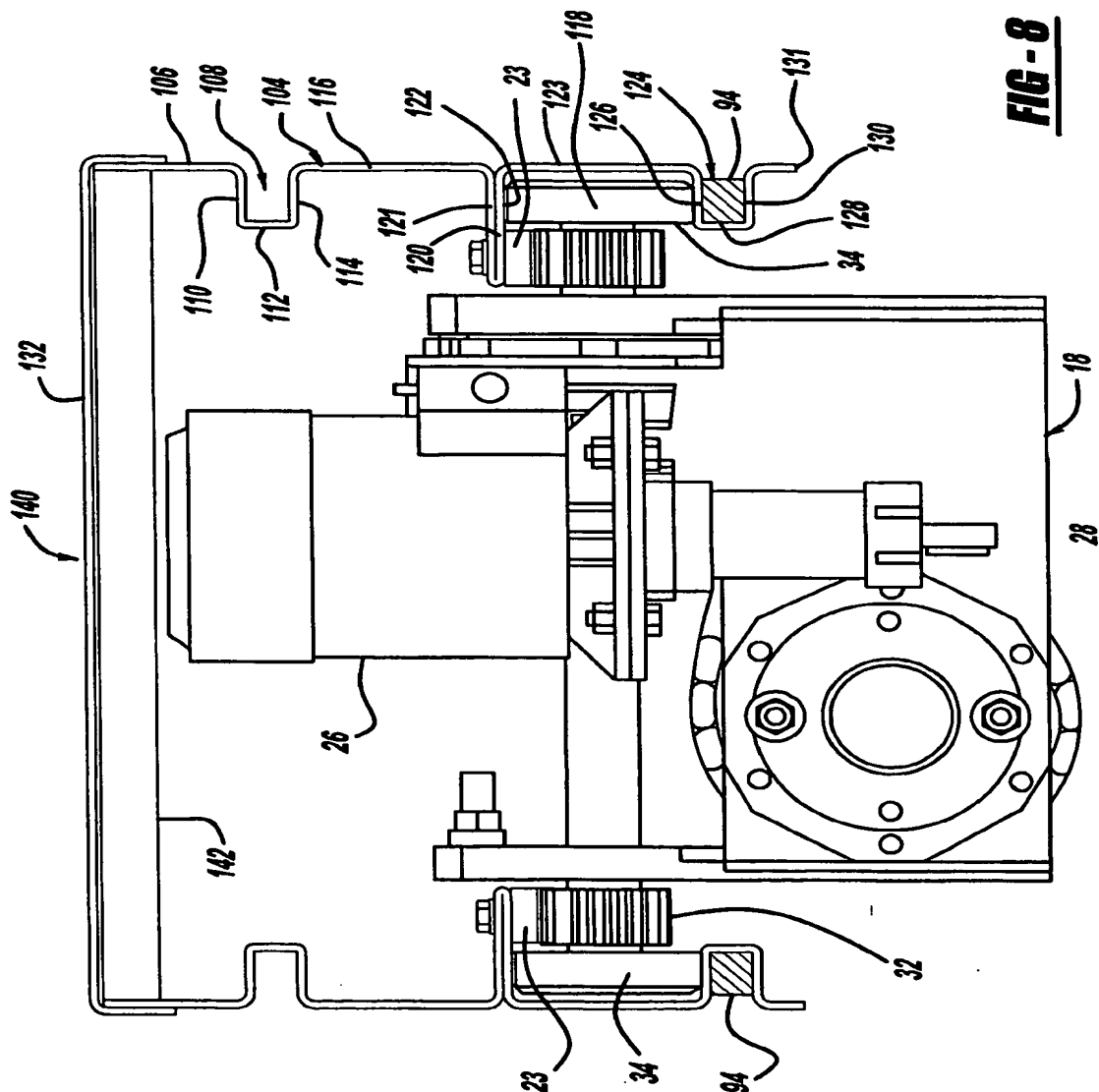
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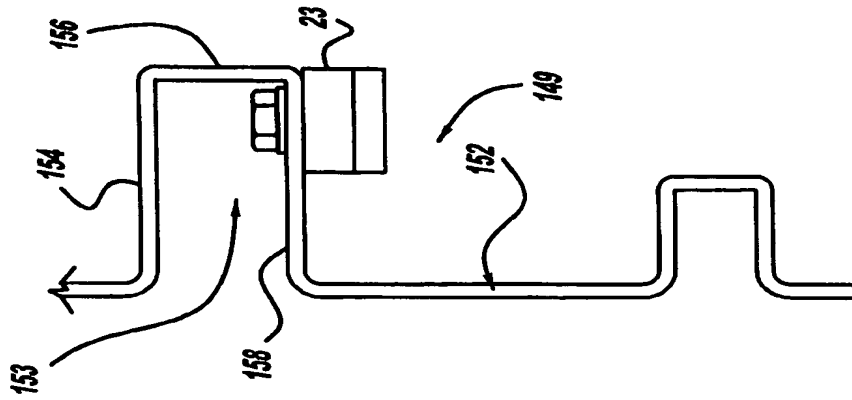
**FIG-6**

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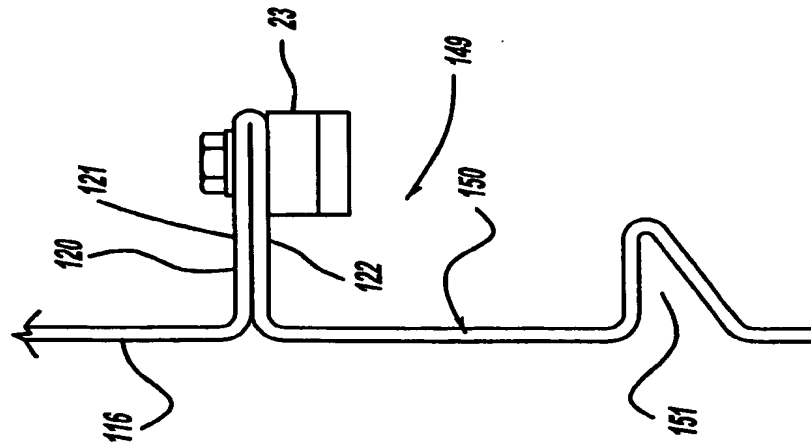




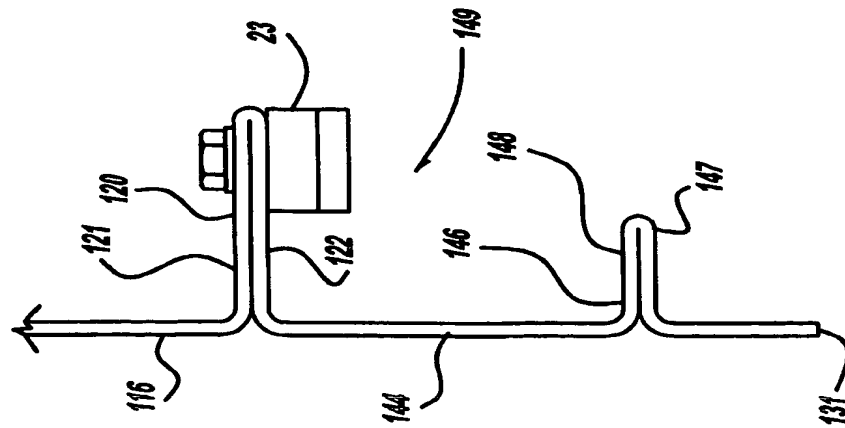
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**FIG - 11**



**FIG - 10**



**FIG - 9**





+01633 814415



INVENTOR IN PEOPLE

Concept House  
Cardiff Road  
Newport  
South Wales  
NP10 8QQ

20 February 2004

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**KENNETH McKAY HUTTON** and **ANTHONY JOHN McKAY**

is/are hereby authorised to file or cause to be filed outside the United Kingdom an application  
for a patent in respect of an invention called

**SOOTBLOWER FRAME**

and described in the documents submitted to this Office.

*A. J. Wilson*  
PP M G WILSON  
for the Comptroller

DP Per 2/77

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# Document made available under the Patent Cooperation Treaty (PCT)

International application number: PCT/US05/006710

International filing date: 02 March 2005 (02.03.2005)

Document type: Certified copy of priority document

Document details: Country/Office: US  
Number: 60/549,414  
Filing date: 02 March 2004 (02.03.2004)

Date of receipt at the International Bureau: 31 March 2005 (31.03.2005)

Remark: Priority document submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b)



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